



Material Safety Data Sheet

MSDS No. MZ-CMA-07

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Cold Mix Asphalt

Product Identifiers: Cold Mix Asphalt, Cold Mix Asphaltic Concrete, Cold Patch Asphalt, Cold Asphalt Paving Material.

Manufacturer: Mar-Zane Materials
Corporate Offices
3570 South River Road
P.O. Box 1585
Zanesville, Ohio 43702/1585

Information Telephone Number:
1-740-453-0127 (8am to 4:30pm EST)

For Chemical Emergency ONLY:
(spill, leak, fire, exposure or accident)

CHEMTREC
1-800-424-9300 24 HOURS / 7 Days

Product Use: Cold mix is used for repairing paving roads, driveways, parking lots, school yards, and other surface, base, or sub-base applications.

Note: This MSDS covers many types of cold mix asphalts. Individual composition of hazardous constituents will vary between cold mix asphalt mix designs.

Section 2: COMPOSITION / INFORMATION ON INGREDIENTS

| Component | Percent (% wt) | CAS Number | ACGIH Exposure | OSHA PEL |
|--------------------------------------|----------------|------------|-----------------------|----------------------|
| Aggregates (gravel and/or limestone) | 95-96 | various | NA | NA |
| CML Liquid Blend Cement | 5-6 | mixture | 100 mg/m ³ | NA |
| Crystalline Silica (as Quartz) | varies | 14808-60-7 | 0.1 mg/m ³ | 30 mg/m ³ |

Note: Cold Mix is a mixture of gravel and/or limestone aggregates, and a liquid asphalt cement emulsion. It may also contain small amounts of asphalt modifiers (e.g. anti-stripping agents, hydrated lime), RAP, fly ash, slag aggregates, fibers (synthetic or organic), color pigment and other recycled materials (e.g. ceramics, plastics, glass, etc.).

Section 3: HAZARD IDENTIFICATION

| | | |
|--|---|--|
| | WARNING!!! | |
| | <p>Toxic – Harmful by inhalation (contains crystalline silica)</p> <p>Irritant: Causes eye, skin, and inhalation irritation.</p> <p>Use proper engineering controls, work practices, and personal protective equipment.</p> <p>Read the MSDS for details</p> | |

Section 3: HAZARD IDENTIFICATION (continued)

- Emergency Overview:** Cold Mix is a black or dark brown granular, solid or semi-solid material with a petroleum odor. Prolonged or repeated skin contact can cause drying of the skin which may produce irritation and/or dermatitis. If heated, hot product will cause severe thermal burns. If burned by hot product, cool affected area immediately with cool water. Do not attempt to remove solidified material from skin. Seek medical attention. When heated, this product may release toxic hydrogen sulfide (H₂S).
- Potential Health Effects:**
- Eye Contact:** Cutting, crushing, or grinding hardened asphalt will release dust. Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with cold mix can cause moderate eye irritation, redness, and itching. Eye exposures require immediate first aid to prevent damage to the eye.
- Skin Contact:** Repeated or prolonged contact to cold mix may cause dry skin, discomfort, irritation, and dermatitis. If heated, direct contact with cold mix will cause severe thermal burns
- Inhalation (acute):** Cutting, crushing, or grinding hardened asphalt will release dust. Breathing dust may cause nose, throat, or lung irritation, including choking, depending on the degree of exposure. If heated, cold mix releases irritating fumes or vapors such as smoke, carbon dioxide, carbon monoxide, unburned hydrocarbons. Hydrogen sulfide and other sulfur-containing gases can evolve from this product at elevated temperatures. Exposure to fumes or vapors may cause irritation of the nose and throat, and symptoms such as headache, dizziness, loss of coordination, and drowsiness.
- Inhalation (chronic):** Risk of injury depends on duration and level of exposure.
- Silicosis: This product contains trace amounts of crystalline silica. Under normal use and application, cold mix does not release crystalline silica. However; cutting, crushing, or grinding hardened asphalt or other crystalline silica-bearing materials will release respirable crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a serious disabling and fatal lung disease.
- Carcinogenicity: Cold mix is not listed as a carcinogen by IARC or NTP; however, cold mix contains trace amounts of crystalline silica that is classified by IARC and NTP as a known human carcinogen.
- Ingestion:** Do not chew or ingest cold mix. Ingestion may result in nausea, vomiting, diarrhea, and restlessness. Chewing asphalt has caused gastrointestinal effects. Stomach obstructions have been reported in individuals who have chewed and swallowed asphalt.
- Medical Conditions**
- Aggravated by Exposure:** Individuals with preexisting skin conditions can be aggravated by exposure.

Section 4: FIRST AID MEASURES

- Eye Contact:** For contact with cold mix material, flush eyes with large amounts of water for at least 15 minutes. Seek medical attention. For contact with airborne dust, rinse eyes thoroughly with water for at least 15 minutes, including under the lids, to remove all particles. Check for and remove any contact lenses. Seek medical attention for abrasions.
- Skin Contact:** Wash with cool water and a pH neutral soap or a mild skin detergent. Do not use solvents or thinners to remove material from skin. Seek medical attention for burns, rash, irritation, and dermatitis. For contact with hot material, immerse or flush skin with cold water for at least 15 minutes. Call a physician. Do not attempt to remove solidified material, since removal may cause further tissue injury. Remove contaminated clothing and shoes. Thoroughly clean clothing and shoes before reuse.

Section 4: FIRST AID MEASURES (continued)

- Inhalation:** Move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. Seek medical attention for discomfort or if coughing or other symptoms do not subside..
- Ingestion:** Do not induce vomiting. Seek medical attention and/or contact poison control center immediately.

Section 5: FIREFIGHTING MEASURES

- Flashpoint:** NA
- Auto-Ignition Temp.** NA
- Specific Hazards:** This product is a combustible solid per the OSHA Hazard Communication Standard,
- Extinguishing Media:** For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) can be used. For larger fires, water spray, fog or foam (AFFF/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment
- Firefighting Equipment:** A SCBA is recommended to limit exposure to combustion products when fighting any fire.
- Combustion Products:** Toxic gases produced in a fire include but not limited to CO, CO₂, and H₂S.
- Flammable Lower Limit:** NA
- Flammable Upper Limit:** NA
- NFPA Rating:** Health: 1 Flammability: 2 Reactivity: 1 Other: ---

Section 6: ACCIDENTAL RELEASE MEASURES

- General:** Use a shovel to scrape up material and place material into suitable containers for recovery or disposal. Do not wash cold mix down sewage and drainage systems or into bodies of water (e.g. streams). Wear appropriate protective equipment as described in Section 8.
- Waste Disposal Method:** Dispose of cold mix according to Federal, State, Provincial, and Local regulations.

Section 7: HANDLING AND STORAGE

- General:** Cold mix asphalt is heavy and poses risks such as sprains and strains to the back, arms, shoulders, and legs during lifting and mixing. Handle with care and use appropriate control measures. Avoid contact with skin, eyes, and clothing. Maintain employee exposure levels below established regulatory limits. If heated, do not allow hot material to contact skin. Use all appropriate Personal Protective Equipment (PPE) described in Section 8.
- Usage:** Cutting, crushing, or grinding hardened asphalt or other crystalline silica bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8.
- Concentrations of hydrogen sulfide (H₂S) can be generated and accumulated in storage tanks and bulk transport compartments which may require additional precautions and procedures during loading and unloading.
- Storage:** Store in appropriately labeled, closed containers, at cool, well ventilated areas. Do not expose open flames, strong oxidizers or other source of ignition.
- Clothing:** Remove and launder clothing that is soiled with asphalt. Thoroughly wash hands and exposed skin after exposure to cold mix.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Under normal conditions, engineering controls are not required. Use local exhaust or general dilution ventilation when using at elevated temperatures or during activities that generate dust or fumes, to maintain levels below exposure limits.

Personal Protective Equipment (PPE):

Respiratory Protection: Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust or fumes above exposure limits.

Eye Protection: Wear ANSI approved glasses, safety goggles, or face shield when handling cold mix to prevent contact with eyes.

Skin Protection: Wear leather or cloth work gloves to prevent skin contact and insulated gloves when handling cold mix material. Thoroughly wash hands and exposed skin after exposure to cold mix.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Granular Solid.
Appearance: Black-Dark Brown Solid Color
Odor: Slight Petroleum / Tar Odor
Vapor Pressure: No Data Available
Vapor Density: No Data Available
Specific Gravity: 2.0 – 2.5
Evaporation Rate: No Data Available
pH (In Water): No Data Available
Boiling Point: No Data Available
Freezing Point: No Data Available
Viscosity: No Data Available
Solubility in Water: Insoluble

Section 10: STABILITY AND REACTIVITY

Stability: Stable. Avoid contact with incompatible materials, excessive heat, sources of ignition and open flames.

Incompatibility: Cold mix is incompatible with strong acids or bases, and oxidizing agents such as nitrates, chlorates, and peroxides.

Hazardous Polymerization: None

Hazardous Decomposition: If heated, may release hydrogen sulfide and various hydrocarbons.

Sections 11: TOXICOLOGICAL INFORMATION

| Name: | CAS Number: | Inhalation: | Dermal: | Oral: |
|------------------|-------------|-------------------|-------------------|-------------------|
| Cold Mix Asphalt | Mixture | No Data Available | No Data Available | No Data Available |

Sections 11: TOXICOLOGICAL INFORMATION (continue)

Summary of health effect data on Asphalt Cement Component:

Some epidemiologic studies conducted on workers exposed to asphalt fume have shown no increased incidence of cancer while other studies have reported a slightly increased incidence of lung, other respiratory tract or gastrointestinal cancers. In those studies in which elevated cancer incidences were reported, concurrent or previous exposure to coal-tar products have been documented. therefore, it cannot be concluded that cancer incidence is related to exposure to asphalt fume.

Although early studies have some technical shortcomings, long term inhalation exposures to asphalt aerosols or fumes did not produce evidence of carcinogenicity even though chronic inflammatory changes similar to those produced by nonspecific respiratory irritants were observed. Inhalation of 150 mg/m³ asphalt fume (particulate + vapor) 6 hours/day, 5 days/week for 13 weeks, did not produce toxicity except for reduced body weight and irritation in nasal passages in exposed rats.

Laboratory animals administered subcutaneous or intramuscular injections of asphalt preparations or repeated skin applications of hot (212 F) undiluted asphalt have occasionally produced a low incidence of skin tumors at the site of application. These findings are of questionable validity since repeated tissue trauma (and/or burns) at the application site can induce tumors. Solvent dilutions of different types of asphalts have been tested in chronic skin painting studies. Some of the studies have reported a low incidence of skin tumors. The use of diluents may enhance bioavailability or metabolic activation of chemicals in the mixture in a fashion not representative of occupational exposure. Skin painting studies in mice have been conducted using condensates from fumes generated at temperatures >450 F diluted in solvent. Asphalt fume condensate preparations have produced skin tumors. Experimental conditions (temperature and dose) were grossly exaggerated over that likely to occur in humans.

Extracts of whole asphalts tested in a modified Ames assay gave negative or slightly positive findings (mutagenicity index <1.5). Fume condensates derived from heating asphalts to high temperatures (>450 F) were moderately active (MI 4-9). Fumes generated from coal tar pitch were >1000 times more active. Asphalt fume samples collected under actual field conditions did not show any significant mutagenic activity.

This product can contain a toxicologically significant concentration of hydrogen sulfide (H₂S). Hydrogen sulfide gas (H₂S) is toxic by inhalation. Prolonged breathing of 50-100 ppm H₂S vapors can produce eye and respiratory tract irritation. Higher concentrations (250-600 ppm) for 15-30 minutes can produce headache, dizziness, nervousness, nausea and pulmonary edema or bronchial pneumonia. Concentrations of >1000 ppm will cause immediate unconsciousness and death through respiratory paralysis. Rats and mice exposed to 80 ppm H₂S, 6 hrs/day, 5 days/week for 10 weeks, did not produce any toxicity except for irritation of nasal passages. H₂S did not affect reproduction and development (birth defects or neurotoxicity) in rats exposed to concentrations of 75-80 ppm or 150 ppm H₂S, respectively. Over the years a number of acute cases of H₂S poisonings have been reported. Complete and rapid recovery is the general rule. However, if the exposure was sufficiently intense and sustained causing cerebral hypoxia (lack of oxygen to the brain), neurologic effects such as amnesia, intention tremors or brain damage are possible.

Summary of health effect data on distillate fuel components:

This product may contain >0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Effects:

If spilled, cold mix may release the oil components of the mixture and could harm plant and aquatic life in low concentrations. This product does not concentrate or accumulate in the food chain. If released to soil and water, this product is expected to biodegrade under both aerobic and anaerobic conditions.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers according to Federal, State, Provincial, and Local regulations.

Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations.

Section 15: REGULATORY INFORMATION

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA / MSHA Hazard Communication Standard:

This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been Listed on the EPA's Extremely Hazardous Substance (EHS) List:
- Hydrogen Sulfide (H₂S) -

SARA Section 304: This product is not listed as a CERCLA hazardous substance.

SARA Section 311/312: The following EPA hazard categories apply to this product:
- Acute - Health – Hazard -

SARA Section 313: This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

RCRA: If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

California Proposition 65: Crystalline silica (airborne particulates of respirable size) is known by the State of California to cause cancer.

Section 16: OTHER INFORMATION

Abbreviations:

| | | | |
|-------------------|--|------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists | NTP | National Toxicology Program |
| (B) | Inhalable fraction, as benzene – soluble aerosol | OSHA | Occupational Safety and Health Administration |
| CAS No | Chemical Abstract Service number | PEL | Permissible Exposure Limit |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act | pH | Negative log of hydrogen ion |
| CFR | Code of Federal Regulations | PPE | Personal Protective Equipment |
| DOT | U. S. Department of Transportation | (RP) | Respirable Particulate |
| EST | Eastern Standard Time | RCRA | Resource Conservation and Recovery Act |
| IARC | International Agency for Research on Cancer | SARA | Superfund Amendments and Reauthorization Act |
| MG/M ³ | Milligrams per cubic meter | SCBA | Self-Contained Breathing Apparatus |
| MSHA | Mine Safety and Health Administration | (TP) | Total Particulate |
| NA | Not Available | TDG | Transportation of Dangerous Goods |
| NFPA | National Fire Protection Association | TLV | Threshold Limit Value |
| NIOSH | National Institute for Occupational Safety and Health | TWA | Time Weighted Average (8 hour) |

This MSDS (Sections 1-16) was revised on January 4, 2008.

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